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-- 2. The device as in claim 1, further comprising a plurality of separate metallic elements respectively formed over said plurality of quantum-well structures.

3. The device as in claim 1, wherein dimensions and indices of said plurality of quantum-well structures and respective gaps are configured to make each quantum-well structure an optical cavity in a resonance condition so that a magnitude of received radiation having a polarization perpendicular to said quantum-well layers is greater than a magnitude of received radiation having a polarization perpendicular to said quantum-well layers when the resonance condition is not met.

4. The device as in claim 1, wherein each quantum-well structure includes at least two different stacks of quantum-well layers which respectively absorb light at two different wavelengths.

5. The device as in claim 1, wherein gaps between adjacent quantum-well structures include a dielectric insulator that has an index of refraction less than an index of refraction of each quantum-well structure.

6. A quantum-well semiconductor device that senses radiation energy, comprising:

a substrate of a substantially transparent semiconductor material; and

a plurality of quantum-well structures in columnar shapes formed over said substrate to form a periodic array, and spatially separated from one another by a gap which is electrically insulating,

wherein each quantum-well structure includes, a first conductive contact layer formed over said substrate, a quantum-well stack having a plurality of quantum-well layers formed in parallel over said first conductive contact layer to absorb radiation polarized perpendicularly to said quantum-well layers, and a second conductive contact layer formed over said quantum-well stack.

7. The device as in claim 6, further comprising a plurality of separate metallic elements respectively formed over said plurality of quantum-well structures.

8. The device as in claim 6, wherein dimensions and indices of said plurality of quantum-well structures and respective gaps are configured to make each quantum-well structure an optical

cavity in a resonance condition so that a magnitude of received radiation having a polarization perpendicular to said quantum-well layers is greater than a magnitude of received radiation having a polarization perpendicular to said quantum-well layers when the resonance condition is not met.

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9. The device as in claim 6, wherein each quantum-well structure includes at least two different stacks of quantum-well layers which respectively absorb light at two different wavelengths.

10. The device as in claim 6, wherein gaps between adjacent quantum-well structures include a dielectric insulator that has an index of refraction less than an index of refraction of each quantum-well structure, and wherein dimensions of each quantum-well structure are configured to form an optical cavity between two opposing side-wall surfaces in said each quantum-well structure with a resonance at a wavelength of absorbed light.

11. The device as in claim 6, wherein each quantum-well structure further includes quantum well layers formed between said first conductive contact layer and said second conductive